



# Volunteer Lake Assessment Program Individual Lake Reports

## SUNCOOK POND, LOWER, BARNSTEAD, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	35,071	Max. Depth (m):	4.9	Flushing Rate (yr <sup>-1</sup> )	22.2	Year	Trophic class	Known Exotic Species
Surface Area (Ac.):	245	Mean Depth (m):	2.9	P Retention Coef:	0.31	1979	MESOTROPHIC	Variable Milfoil
Shore Length (m):	5,800	Volume (m <sup>3</sup> ):	2,916,500	Elevation (ft):	551	1992	OLIGOTROPHIC	

### TROPHIC CLASSIFICATION

### KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

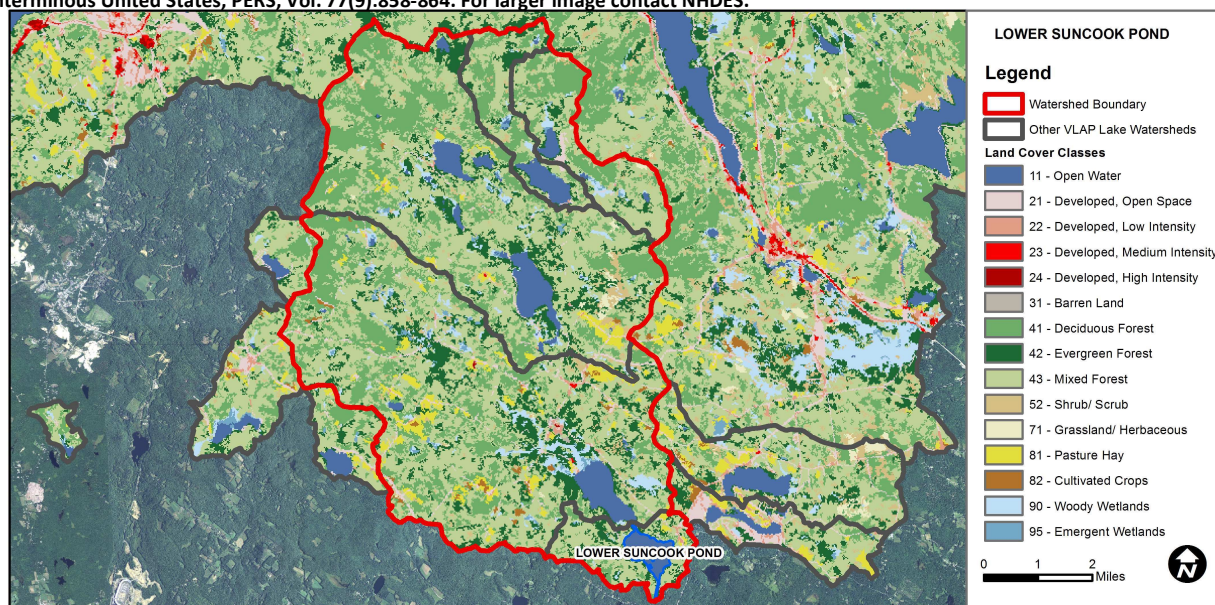
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Encouraging	< 10 samples and no exceedance of criteria. More data needed.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

UPPER SUNCOOK LAKE - TOWN BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
UPPER SUNCOOK LAKE - CAMP FATIMA BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.17	Barren Land	0.06	Grassland/Herbaceous	0.37
Developed-Open Space	1.9	Deciduous Forest	24.31	Pasture Hay	2.86
Developed-Low Intensity	0.3	Evergreen Forest	13.22	Cultivated Crops	0.45
Developed-Medium Intensity	0.02	Mixed Forest	45.37	Woody Wetlands	2.83
Developed-High Intensity	0.01	Shrub-Scrub	2.44	Emergent Wetlands	0.67



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

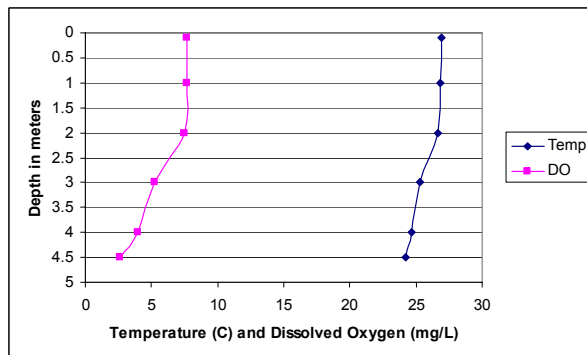
## SUNCOOK POND, LOWER, BARNSTEAD, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- 🔥 **CHLOROPHYLL-A:** Chlorophyll increased slightly from 2011 but was below the NH lake median. Historical trend analysis indicates a relatively stable chlorophyll level since 2003.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were relatively low at all stations.
- 🔥 **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus increased slightly from 2011 but was below the NH lake median. Historical trend analysis indicates relatively stable epilimnetic phosphorus since 2003. Inlet and Outlet phosphorus levels were low.
- 🔥 **TRANSPARENCY:** Transparency improved slightly from 2011. Historical trend analysis indicates the transparency fluctuates from year to year.
- 🔥 **TURBIDITY:** Deep spot turbidity was low. Morin's Inlet turbidity was slightly elevated possibly due to low flow conditions.
- 🔥 **PH:** Deep spot pH tends to fall below desirable levels.
- 🔥 **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer to better assess summer water quality and historical trends. Educate watershed residents on ways to reduce stormwater runoff and phosphorus loading from their properties utilizing DES' "NH Homeowner's Guide to Stormwater Management".

#### Dissolved Oxygen & Temperature Profile



Station Name	Table 1. 2012 Average Water Quality Data for LOWER SUNCOOK POND								
	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Deep Epilimnion	3.5	3.71	5	49.2	11	3.00	3.63	1.00	6.36
Deep Hypolimnion				49.1	9			1.08	6.52
Morins Inlet			5	48.9	11			1.58	6.63
Narrows Rd Inlet			5	48.1	9			1.14	6.67
Outlet				48.0	7			0.94	6.72

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:  
Sara Steiner  
PO Box 95  
Concord, NH 03302-0095  
(603) 271-2658  
sara.steiner@des.nh.gov



#### Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data

